REMARKS

The claims have been amended to overcome the 35 U.S.C. 112 objections and to ensure that the invention patentably distinguishes the present invention from the prior art of record.

Concerning the objection to the drawings on page 2, paragraph (1) of the Official Action, claim 22 was amended on May 27, 2003 to delete reference to a pneumatic mount. The current version of claim 22 does not include a pneumatic mount. Claims 6 and 14 are being cancelled. Claim 11 has been amended to indicate that the control system of the coarse stage isolation mount controls the position of the fine stage isolation mount relative to an aircraft and consequently to a smooth representation of a flight path of the aircraft. If the position of the fine stage isolation mount is controlled relative to an aircraft, such position will also be controlled with respect to a smooth representation of a flight path of the aircraft.

The points raised with respect to the claims on page 3, paragraph (4) of the Official Action are well taken. Accordingly, claims 34, 21, 23 and 31 have been amended to indicate that the coarse stage isolation mount attenuates (or is adapted to attenuate) low frequency, large amplitude displacements of the gravity gradiometer relative to a flight path ideal to the measurement of gravity gradients, and the fine stage isolation mount attenuates (or is adapted to attenuate) high frequency, small amplitude vibrations of the gradiometer relative to an aircraft and consequently relative to a flight path ideal to the measurement of gravity gradients.

As amended, the claims are believed to patentably distinguish the present invention from Kleinholz in view of Van Kann et al. As claimed, applicants' invention is a two-stage, actively controlled motion isolation system, which includes a first

stage for mounting in an aircraft for attenuating low frequency, large amplitude displacements of a gravity gradiometer relative to a flight path ideal to the measurement of gravity gradients, and a fine or second stage isolation mount carried by the coarse stage isolation mount and supporting the gradiometer for attenuating high frequency, small amplitude vibrations of the gradiometer relative to an aircraft and consequently to a flight path ideal to the measurement of gravity gradients. The Kleinholz patent does not disclose such a combination of elements. The Kleinholz patent does not address the issue of isolation of an instrument from large amplitude displacement of an aircraft relative to an ideal flight path.

The Kleinholz patent is directed solely to a vibration isolation apparatus for supporting a payload above a vibrating platform or floor including a passive isolator and a set of actuators connected between the floor and the payload for moving the payload support to compensate for low frequency vibrations of the platform or floor. As illustrated schematically in Fig. 4 of the patent drawings. Kleinholz includes passive-active isolation mounts 5, including a piston 7 in a closely fitted cylinder 9. A payload is mounted on a platform connected to the air springs or air mounts 5 by U-joints 17 which allow relative pitch and roll between the payload 3 and the mounts 5. The cylinder body 9 of each air mount 5 is fixed to ground through slender column flexures 19. Horizontal 21 and vertical 23 voice-controlled actuators act between the payload 3 and ground 25. Horizontal 27 and vertical 29 displacement sensors detect the position of each actuator moving element relative to the ground 25. A controller 33 is connected to the sensors and to the actuators for vibration isolation of the payload from the floor (underlining added for emphasis). Thus, Kleinholz is concerned with vibration isolation only, and not with low frequency, large

amplitude displacements of a payload or instrument as claimed in each of the claims of this application. It will be noted that the apparatus of the present invention does not merely isolate vibrations of a gradiometer relative to an aircraft body, but rather attenuates (1) low frequency, large amplitude displacements of a gradiometer and (2) high frequency, small amplitude vibrations of a gradiometer relative to an aircraft and consequently relative to an ideal flight path.

The attenuation of vibrations at various frequencies does not constitute attenuating large amplitude displacements. Applicants are aware of the Van Kann et al patent. Van Kann et al do not overcome the deficiencies of the primary reference. Applicants do not pretend to be the first to mount a gravity gradiometer in an aircraft.

Early and favourable reconsideration of this application is requested.

Yours sincerely,

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